A KINEMATIC ANALYSIS OF UCHI-MATA (INNER THIGH REAPING THROW) BY KUMI-KATA TYPES AND TWO OPPONENTS’ DIFFERENT HEIGHT IN JUDO

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INTRODUCTION
The purpose of this study was to analyze the kinematic variables when Uchi-mata(inner thigh reaping throw) performing by Kumi-kata(engagement positioning, basic hold) types A, B(A: grasping part-behind neck lapel, B: chest lapel) and two opponents' different heights in Judo with three dimensional analysis technique DLT method by videography.

METHODS
The subjects were four male judokas who have been training in Yong-In University(YIU), on Korean Representative level and Uchi-mata is their Tokui-nage(favorite technique), the throwing form was filmed on two S-VHS 16mm video camera( 30frame/sec. Panasonic).

The data collection was performing by Uchi-mata. Six good trials were collected for each condition (type A, B) among over 10 trials. The mean values and the standard deviation for each variable were obtained and used as basic factors for examining characteristics of Uchi-mata by Kumi-kata types.

RESULTS AND DISCUSSION

1. Influence of Kumi-kata types in body Kinematic variables during Uchi-mata in Judo
   a) Temporal variables : The total time elapsed(TE) by Uchi-mata of types A, B were 1.45, 1.56 sec. respectively.

b) Posture variables : During Uchi-mata performing, type A showed pulling pattern and type B showed lift-pulling pattern. As Kumi-kata types, it were different to upper body(elbow, shoulder angle), but mostly similar to lower body(hip, knee, ankle angle) on both types.

c) C. O. G. variables : As Kumi-kata types, it were different on medial-lateral direction aspect but weren't different in Kazushi phase on vertical direction aspect.

2. Influence of Kumi-kata types and two opponents' different heights in bodys Kinematic variables during Uchi-mata in Judo
   a) There were significant difference of Kumi-kata types(p<.05) in the time elapsed on Kake phase(KP : throwing phase) and hip, knee, ankle-angle of the attacking foot in the 1st stage of KP and knee, ankle-angle of the attacking foot and hip, knee, ankle-angle of the supporting foot in the 2nd stage of KP.
   b) There were significant difference of two opponents' different heights(p<.05) in the time elapsed on KP and hip-angle of the supporting foot in 1st stage of KP and ankle-angle of the attacking foot in 2nd stage of KP.
   c) The interaction effect(p<.05) were in the time elapsed on KP and hip-angle of the supporting foot in the 2nd stage of KP.

SUMMARY
So, It could be suggested that Judoka hold on the part-behind neck lapel(type A) at the sleeve with the other of Judogi jacket when opponents' height was short. Because the time elapsed on KP of type B was not so fast as type A(p<.05) during performed Uchi-mata, and also the bigger hip-angle of the supporting foot in the 2nd stage of KP grew, the faster the time elapsed on KP became.